

Electrically Conductive, Hydrophilic Porous Membrane for Fuel Cell Applications, Phase I

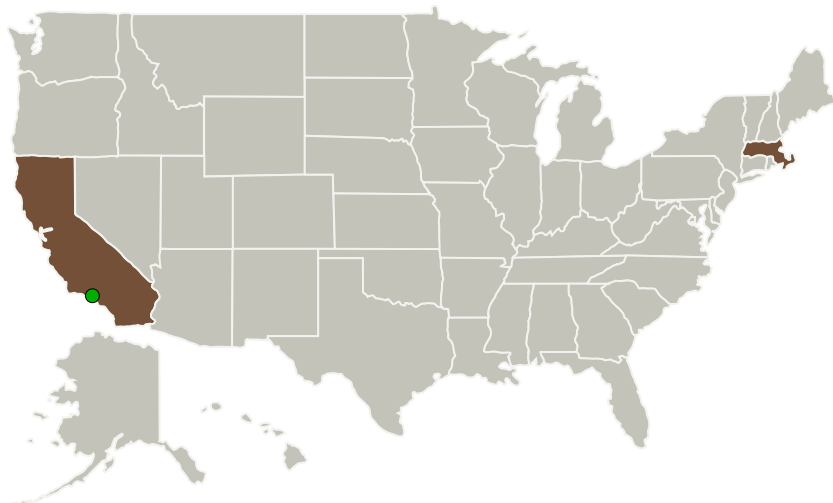
Completed Technology Project (2011 - 2011)




Project Introduction

This Phase I effort seeks to produce a conductive polyethersulfone (PES) microporous membrane for fuel cell water management applications. This membrane will facilitate gas/liquid separations in regenerative fuel cells (RFC). The preferred novel approach will impart electrical conductivity to the PES itself; previous attempts at similar membrane development have only focused on applying a conductive layer to the surface of the PES membrane. This type of porous, conductive membrane would lead to improved water management for fuel cell and electrolyzer systems, and could significantly improve the performance of NASA's RFC. Such an improvement in performance could facilitate the design of smaller, lighter weight RFC systems for renewable energy storage for space applications. This project will result in the novel development of a conductive microporous membrane for NASA fuel cells and electrolyzers, and will also provide better understanding of the preparation and design of conductive membranes for other applications.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Giner, Inc.	Lead Organization	Industry	Newton, Massachusetts
 Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California



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Primary U.S. Work Locations

California

Massachusetts

Project Transitions

 **February 2011:** Project Start

 **September 2011:** Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/138118>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Giner, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

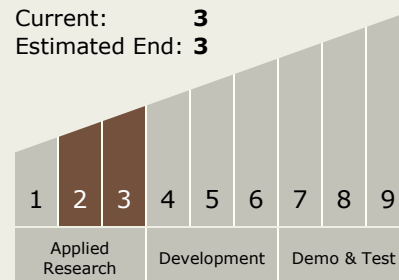
Carlos Torrez

Principal Investigator:

Jason Willey

Technology Maturity (TRL)

Start: 2
Current: 3
Estimated End: 3



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Technology Areas

Primary:

- TX03 Aerospace Power and Energy Storage
 - └ TX03.1 Power Generation and Energy Conversion
 - └ TX03.1.4 Dynamic Energy Conversion

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System